Dispersion Management Reflector

DMR

indie's all-fiber DMR chirped fiber Bragg gratings (CFBG) provide precise compensation for either anomalous or normal dispersion for mode-locked ultrafast lasers.

The DMR has especially high dispersion accuracy and is compatible with most mode-locked laser configurations including picosecond and femtosecond lasers, customizable wavelengths, cavity lengths and repetition rates.

Mode-locked ultrafast fiber lasers have replaced most of their solid-state counterparts because of superior ruggedness, easier miniaturization, and simpler integration. indie is a pioneer in designing and manufacturing chirped FBGs for ultrafast fiber lasers. After a decade of refinement, the DMR is unmatched in the industry for meeting the demanding requirements of femtosecond pulse generation.

Applications

- Material Processing
- Laser Surgery
- Spectroscopy
- THz Generation
- High Energy Ultrafast Research
- Multiphoton
- Microscopy

Features

- Accurate
- Robust
- Reliable
- Standardized
- Adaptable

Features Details

- **Accurate:** Precision dispersion management enables ultra-short pulse durations by ensuring that the full spectrum of wavelengths maintains a proper phase relation.
- **Robust:** The monolithic design of the all-fiber DMR intrinsically eliminates misalignment caused by temperature changes or mechanical shock, enabling pulse durations as short as 50 fs.
- **Reliable:** indie's chirped FBG products have been the critical components for a variety of fiber laser systems for over a decade.
- **Standardized:** We stock a range of reflectors designed for PM 980 fiber and optimized for the 1030 nm wavelength band.
- **Adaptable:** DMR reflectors are available as custom-made components, selectable wavelength, bandwidth, fiber-type, and dispersion parameters.

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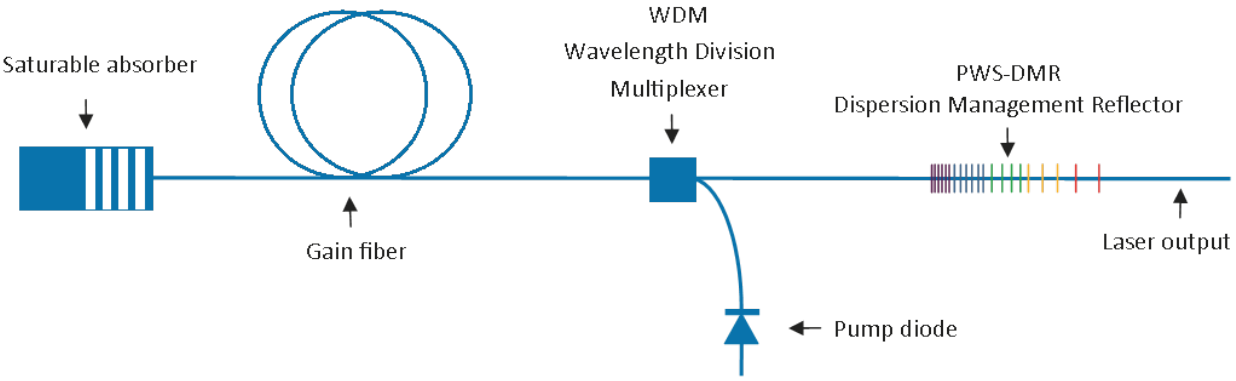
Mode-Locked Ultrafast Laser with Chromatic Dispersion Management



Standard Configuration Specifications

For Femtosecond Lasers

Parameters	Configuration 1	Configuration 2	Units
Reflection bandwidth at -3dB FWHM[1]	20 ± 1	10 ± 1	nm
Peak reflectivity	>12.0	>25.0	%
D2[2]	+0.20	+0.42	ps/nm
D3[2]	0	0	ps/nm^2
Center wavelength at room temperature[3] (slow axis)	1030 ± 3		nm
Spectral shape	Gaussian		
Wavelength referenced to	Air		
Connector type	None		
Fiber type	PM 980		
Packaging	UV-cured acrylate		
Pigtail length (on each side)	≥1		m
RoHS compliant	Yes		

[1] Short wavelengths are reflected first
[2] The group delay function is: GD = D1 + D2(λ - λ0) + D3(λ - λ0)^2
[3] Room temperature = 20 °C to 23 °C

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Customizable Sepcifications

Parameters	For picosecond laser	For femtosecond laser	Units
Wavelength range (full coverage)	Between 780 and 2200		nm
Bandwidth	0.015 to 2	>2 to 50	nm
Dispersion rate	>10 to 1000	0.015 to 10	ps/nm
Chromatic dispersion management	Up to third order		
Reflectivity	Up to 95	Up to 50 (typ. 20)	%
Fiber type	Single-mode, polarization maintaining or large mode area		
Package	Recoated or loose tube		

Use the chart below when ordering your customized item

DMR	-	x	x	x	x	.	x	-	x	x	x	.	x	-	x	x	(	±	X	x	x	x	x	±	x	x	x	x	)	-	X	x
		1							2						3			4						5							6	

Nomenclature options		
1	=	Wavelength (nm)
2	=	Bandwidth at -3 dB (nm)
3	=	Reflectivity (%)
4	=	±D2 or ±β2
		Dxxxx (ps/nm)
		βxxxx (ps^2)
5	=	±D3 or ±β3
		xxxx (ps/nm^2)
		xxxx (ps^3)
6	=	Fiber type
		P1 = polarization maintaining
		P2 = PM with cladding suppression mode
		S1 = Single mode non-PM
		S2 = CMS non-PM